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ABSTRACT

In their study of the usage demands placed on journal collections in academic libraries, Allen Kent and coauthors have not adequately considered the long-term variability of those demands in their formulation of a cost-benefit model for the management of journal collections. Though resource-sharing and the matching of periodical acquisitions to usage patterns can yield significant budgetary savings, the data gathering and data analysis techniques employed in Kent's study have limitations for predicting future use patterns and for making acquisitions decisions. The study fails to account for biases in usage patterns attributable to cyclical demands through the service day and academic year, and also fails to consider the intensity of journal use--quickly scanning an item counted as equivalent to reading it for several hours. Another shortcoming is the costly, labor-intensive aspect of Kent's technique: interviewers were used to contact individual journal users. Generalizing obsolescence rates over a group of titles is also questionable, for frequency of use as a function of age differs substantially between core and other journals with specific disciplines. Kent's study is useful in its development of a model for studying journal use, even though his methods are not satisfactory. (JL)

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Comments on Progress Report: A COST-BENEFIT MODEL OF SOME CRITICAL LIBRARY OPERATIONS IN TERMS OF USE OF SERIALS (April 29, 1977)

by
Allen Kent and Others

Presented at Maryland Library Association, Academic and Research Libraries Division, meeting, November 1, 1977.

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Comments on Progress Report: A COST-BENEFIT MODEL OF SOME CRITICAL LIBRARY OPERATIONS IN TERMS OF USE OF SERIALS (April 29, 1977)

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There is ample historical evidence to indicate that adversity seems to bring out the best in people. In looking at the research on the diffusion of innovations, we often find that a crisis will precipitate acceptance at a faster rate. It may very well be that, when we look back over the 70's in terms of collections management, we will see that scarcity of resources and the crisis situation it is precipitating in some libraries caused librarians to develop and implement innovative methods of assessing the situation and appropriate solutions. What we are finding now is that the solutions do not seem to lie solely in the individual library, nor necessarily in libraries, but that they involve the publishing system and, to a great extent, the scholarly disciplines which produce and consume the products. Hopefully we will find that, at least on a system-basis, the methods and solutions did not force us to abdicate the societal responsibility of preserving knowledge for future generations, the archival function which Dr. Kent has so blithely eliminated from his model.

It is this consideration which causes me to distrust philosophically allocation models which focus narrowly on current demand, particularly when there are problems in assessing current demand. With this emphasis,

it seems to me that we run the very great risk of looking inward in time and audience at the cost of future use. Realistically, however, I can appreciate the position of librarians who strive for an effective allocation of funds and simply must be responsive to current demands, particularly when not all of these can be met. I would merely like to make the point that if the individual research libraries which have traditionally been responsible for selecting and maintaining materials from both a short- and long-term perspective must abandon the long-term perspective then some mechanism must be instituted into the system to provide that archival function.

My other comments will be less philosophical and more cognizant of the particular aims of Dr. Kent's study. They will be based on the progress report since I did not have access to the paper he presented today and will be mainly about the study of journal use. This is an area that I am more familiar with because of my own research. It is also the area which has the greatest potential for institutional savings through resource-sharing and/or storage. That this has been recognized is obvious in the substantial body of literature relating to developing lists of core periodicals for subject fields based on some measure of use and determination of titles and age of materials to be put into storage. The first research area relates to the dispersion of relevant literature over specific journal titles and the second to the life-span of material. The purpose of the journal study was two-fold: to develop a methodology that would provide librarians with a relatively simple mechanism for discerning patterns of usage and to test the methodology

in science and engineering libraries at Pittsburgh.

Data on journal usage, collected as they were in this study, have severe limitations for predicting future journal use patterns and thus for making decisions about acquisition and retention. The journal use data were collected during sample intervals dispersed over a semester or academic year in several departmental libraries. The data were subsequently analyzed by libraries, not by intervals. The data in this study simply measure use at one period in time. At another time the body of literature is different in terms of age and size simply due to growth, there may have been changes in user-related variables either because of developmental changes within the same group or totally new group members. As a result, the pattern of use may be markedly different. A more appropriate method for forecasting use-by-date decay rates is to look at a particular body of literature and to analyze its use over a period of time. Assuming that changes in use observed over time will continue at the same rate, it is possible to make predictions about future use based on past use.

The point I am making will be clearer, I think, if I can describe it graphically. Imagine the first year's publications of physics as a small circle, and each successive year's publications as a concentric circle around that nucleus. Collecting data as they were collected in the journal use study simply amounts to cutting a wedge into the series of concentric circles. The wedge can be divided into narrower wedges by grouping the users on personal characteristics, for example, as the study did, on departmental affiliation and academic status. But at other points

in time the configuration of literature as reflected in the circles would not be the same. The literature would have grown at its critical external portion, the most current materials, and the general age distribution quantity of literature would have been affected by the passing of time. It simply is not possible to assume that the patterns of use would be similar.

The book use study incorporated a synchronic analysis, or a study across time, of the effect of the aging of books on circulation. Its purpose was to predict the percentage of literature which would be used for the first time in future years, based on the rate of first time use during the first few years the materials were in the library. It was not interested in measuring the number of uses a particular item might expect over time. There is a problem with this study which raises doubt about the validity of its findings. The sample items studied were 1969 and 1970 acquisitions of circulating materials. The Progress Report does not indicate that there was any attempt to measure the age distribution of the acquisitions or to control the age, for example, by eliminating older materials which were simply acquired in 1969 or 1970. Without a control of the age distribution of the acquisitions, the variable being studied is not age since publication, a reasonable predictor of subsequent use, but age since acquisition, a less reliable factor. Physical proximity is, of course, a factor in use but it is unlikely to be of sufficient importance to offset substantial age differences at the time of acquisition.

A decline in use is a normal expectation in light of the emphasis on currency in most users' information-seeking patterns. Older materials tend to be sought only if they have passed some qualitative judgment, such as being recommended by a professor, cited by a colleague, or included in a subject bibliography. Older materials may be more readily accepted by students since there is some evidence of a greater willingness on their part to accept alternative older materials if more current items are not available at the time they are needed. With a normal growth rate the body of literature is constantly expanding and one year's production falls into disuse, in some cases because there has been a judgment about quality, but in other cases simply because it is no longer current. Without realizing it, users may be placing a priority ranking on currency without considering quality. Some materials decline in use but then reach an equilibrium in terms of total uses. With the literature growth rate, however, relative use diminishes simply because the denominator of the equation has steadily increased. In other words, there is simply more literature competing for use.

The problem with any study of library use is to adequately sample the population so that biases attributable to cyclical demands within the service day and over the academic year are controlled. This study samples journal use in hour to hour-and-a-half intervals emphasizing busy periods over a semester or academic year. For each of these periods all readers using periodicals were asked to fill in brief questionnaires or were interviewed to gather information about the title being used, its date, the user's academic status and departmental affiliation, and his

method of being alerted to this title. The time periods served as a means of clustering a number of journal title uses, which was the element of analysis. Total number of uses could vary within the time frame and presumably across users. The study was not interested in the intensity with which a journal was used but simply its use, which was defined minimally as picking up a title and leafing through pages. One user using ten periodicals within a time period would provide ten uses; if he used ten articles but only from five periodicals, he would provide only five uses. The variance across users is not explicit in the report but is implicit in the unit of analysis, which is journal title use. I have some questions about the reliability of this data, based on problems inherent in the data-gathering technique. With only one interviewer per library during a time period, it would be possible for the interviewer to be unaware that a user had switched journals unless he closely monitored the behavior of all users during that time. Also, a user spending an hour or so leafing through a series of titles might object to being questioned about each title change. And he would have to be questioned to determine the alerting method; other information could be gained from observation and from the initial contact.

Methods of gathering data can rarely be generalized from library to library without explicitly considering any unique institutional factors which might affect the data being gathered. Failing to consider use of a file of photocopied articles developed in response to heavy demands for class use could bias the data on all variables studied: the specific titles used, the date of materials used, types of users, and alerting

methods. Such files existed in two Pittsburgh libraries but it was not felt necessary to do a study of their use at the same time and under the same sampling frame as the study of the regular collection. At the time of the Progress Report the study had not been done. Comparisons were made between the libraries with these files and the physics library where no such file existed. The comparative value of the statistics is questionable.

Some of the problems with data-gathering have already been mentioned. The method is labor-intensive since it relies on interviewer participation and would be costly for other libraries to implement. Since the study was initiated to develop methodology which could be used by other libraries, it should have addressed, and perhaps will, variants of data-gathering. These might include, for example, the effect of using self-administered forms on data reliability and validity, curtailing the length of the sampling period or the number of time periods sampled, and considering the total number of uses which would provide valid predictive data with the option of quota sampling. Similar considerations for the book use study have greatly refined its sampling procedure. For one library the study did comment that a particular user group had a pattern similar to total usage and could be used, therefore, as a sample group. Unless the method of gathering data is modified, however, the cost factors would remain the same, with the added step of identifying the members of that user group.

Generalizing obsolescence rates over a subject group of titles is questionable. Sufficient variance in individual title use suggests that

decisions about retention or storage should be made on a title-by-title basis. In a 1972 study of physics journals based on use at the MIT Science Library, Chen found that the frequency of use as a function of age for core journals differed substantally from other physics journals.[1] With the exception of two letters journals, they generally had a much longer life-span than other physics journals. As her data for Physics Review indicates, and remember the study was done in 1972, pre-1961 volumes were used 198 times over a 3-1/2 month period. This accounted for 33 per cent of the journal's total use and almost five per cent of the total use of all physics journals. Her two exceptions point out the validity of considering type of journal in determining obsolescence rates if groupings must be made. As Maurice Line has pointed out, there are two overlapping models of periodical use, one dictated by current awareness which tends to emphasize recent materials, another influenced by retrospective searching and dependent to some extent on time lags of indexing and citing in other articles.[2] The latter emphasizes older journals. Materials more appropriate for the first, such as letters journals, have relatively short life-spans; in the second category, more specialized journals which have a limited current awareness use simply because of the limited number of regular perusers, may have a longer life-span after indexing or citing. Research is going on which tests the hypothesis that patterns of citation for core and non-core physics journals are similar in pattern, if not quantity, and vary primarily in the time lag of the initial citation.

I do not intend to be wholly negative about Dr. Kent's study. He is addressing a problem that is critical, but is also very complex. And his emphasis on developing model methodology is important. Relatively few libraries have research staffs to do the developmental work associated with management information gathering and he is providing that component. I have focused in my analysis on his model since that is the primary purpose of the study of journal use. At the present state of development in the journal use study, the methodology is questionable both for predictive purposes and for accurately measuring use at one time. It does not reflect any attempt to build cumulatively on literature on the subject of obsolescence or the development of lists of core journals. If the emphasis on simplicity is intentional, then the study is questionable in terms of its ability to develop a method that is transferrable to other libraries since it fails to consider such elements as cost of collecting data, institutional variables which might affect accuracy, and alternative methods. It is obvious in the Progress Report that the methodology of the book use study has received greater attention in the early phases of the project and some contributions there are significant, such as indicating that in-library use and external circulation are sufficiently similar that only external use need be measured. I hope that my comments will help to refine the methodology of the journal use study as that portion of the project receives greater attention.

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